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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/685,195	10/10/2000	Timothy K. Miller	195269US-8	4305

7590 09/30/2003

Oblon, Spivak, McClelland, Maier & Neustadt
4th Floor
1755 Jefferson Davis Highway
Arlington, VA 22202

EXAMINER

LIU, SHUWANG

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 09/30/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/685,195

Applicant(s)

MILLER ET AL.

Examiner

Shuwang Liu

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 October 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4 and 6</u> . | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 02/13/2001 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.
2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Specification

3. The disclosure is objected to because of the following informalities:
 - (1) The updating status of the cited application in the specification are required if appropriate. The application serial No. (XX/XXX,XXX) should be filed by the application number.

(2) on page 12, line 2 (and others), the source of the reference "Lathi" should be given.

Appropriate correction is required.

Claim Objections

4. Claims 1-15 are objected to because of the following informalities:

In claims 1, 8 and 15, line 1, insert - -ultra-wideband- - before "UWB signal".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-6, 8-13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richards et al. (US 6,556,621) in view of Raphaelli et al. (US 6,614,864).

As shown in figures 1A, 2A, 4, 5, 8, 10-12 and 15, Richards et al. disclosed:

(1) regarding claims 1, 8 and 15:

a method and a system for identifying a phase of an incoming UWB signal at a UWB receiver, comprising the steps of:

receiving incoming pulses of the incoming UWB signal (706 in figure 7), adjacent pulses of said incoming pulses arriving at a predetermined interval (column 4, lines 28-67, column 5, line 1-column 6, line 10 and 404 in figure 5);

generating local pulses (730) at the UWB receiver;

correlating (710) the local pulses with the incoming pulses to produce a correlation function; and

determining if the correlation function (result) exceeds the threshold for a lock condition (synchronization) (steps 4-14 in figure 10).

Richards et al. discloses all of the subject matter as described above except for specifically teaching determining a maximum of the correlation function as claimed.

Raphaeli et al., in the same field of endeavor, teaches a method for acquiring synchronization, wherein once the correlation result (function) exceeds the threshold, the maximum of the correlation function is determined (figure 4, and 98 in figure 5, column 17, lines 25-60). That is, the maximum of the correlation function is determined by the exceeding the threshold during the acquiring synchronization.

It is well known that the maximum of the correlation function is determined by checking if the correlation function exceeds the threshold value. The well-known method to determine the maximum of the correlation provides for a more reliable communication in the presence of high narrowband noise, spectral distortion and pulse noise and can be utilized to identify an incoming received signal more quick and

efficient. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to determine the maximum correlation by a threshold as taught by Raphaeli et al. in the acquiring synchronization of Richard et al. in order to allow the receiver to demodulate UWB signal more quick and efficient and provide a more reliable communication in the presence of high narrowband noise, spectral distortion and pulse noise.

(2) regarding claims 2 and 9:

wherein the predetermined interval is the time between the incoming pulses (column 4, lines 28-67, column 5, line 1-column 6, line 10 and 404 in figure 5).

(3) regarding claims 3 and 10:

wherein the incoming pulses are at least one of bi-phase modulated, and quadrature phase modulated (column 6, lines 42-51).

(4) regarding claims 4 and 11:

wherein the incoming pulses are multilevel pulses (column 7, lines 1-15).

(5) regarding claims 5 and 12:

wherein the step of correlating the incoming pulses with the local pulses to produce a correlation function comprises:

shifting a phase of the local pulses (48 in figure 15); and

calculating a correlation value of the local pulses and the incoming pulses (49).

(6) regarding claims 6 and 13:

wherein the correlation value comprises the correlation function (49 and 50).

7. Claims 7 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richards et al. (US 6,556,621) and Raphaeli et al. (US 6,614,864) as applied to claims 1 and 8 above, and further in view of Kaku (US 5,812,593).

It is inherent in the determining maximum processing that finding a first maximum and analyzing the correlation function to find a second maximum that exceeds the first maximum as recited in claims since there is only one maximum in the correlation function. For example, Raphaeli et al. teaches finding a first maximum and analyzing the correlation function to find a second maximum that exceeds the first maximum during the determining a maximum of the correlation function (60 in figure 4). However, Richards et al. and Raphaeli et al. does not disclose searching a region around the second maximum to determine if the second maximum is a true maximum.

Kaku, in the same field of endeavor, teaches a method searching a region around the second maximum to determine if the second maximum is a true maximum (column 4, lines 23-27 and column 6, line 60-column 8, line 38).

It is desirable to improve the resolution of the demodulation result by using searching processing during the synchronization so as to provides a more reliable communication in the presence of multipath signals. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the search processing as taught by Kaku in the acquiring synchronization of Richard et al. and Raphaeli et al. in order to allow the receiver to improve the resolution of the demodulation result and provide a more reliable communication in the presence of multipath signals.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shuwang Liu whose telephone number is (703) 308-9556.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin, can be reached at (703) 305-4714.

Any response to this action should be mailed to:

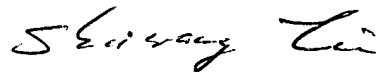
Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9306 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



Shuwang Liu
Primary Examiner
Art Unit 2634

September 21, 2003